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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,383	10/30/2001	Volker Rasche	NL000577	5417

7590

11/04/2002

U.S. Philips Corporation
580 White Plains Road
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EXAMINER

THOMAS, COURTNEY D

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 11/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/022,383

Applicant(s)

RASCHE ET AL.

Examiner

Courtney Thomas

Art Unit

2882

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because of the following informalities: Claim 5 is vague and indefinite and fails to distinctly point out what applicants consider being their invention. Examiner also notes that support for said modeling techniques is not supported within the specification. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klotz et al. (U.S. Patent 5,852,646) in view of Pflaum (U.S. Patent 6,324,254).

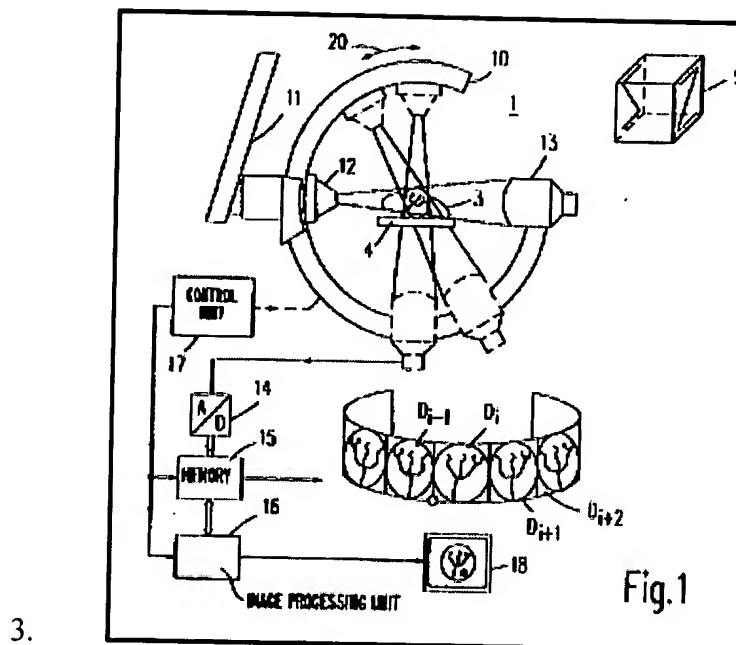


Figure 1 - U.S. Patent 5,852,646 to Klotz et al.

4. As per claim 1, Klotz et al. disclose a method comprising: forming a set of 2-dimensional images (18) of an object (3) to be examined, by means of a scan rotation of an X-ray source (12) around said object over a run length (20).
5. Klotz et al. do not explicitly disclose a method wherein X-ray images are acquired at predetermined moments in a cardiac cycle of the object and reconstruction of a 3-dimensional volume thereof wherein the run length of the scan rotation over 180 degrees is at least 15 seconds and preferably about 20s.

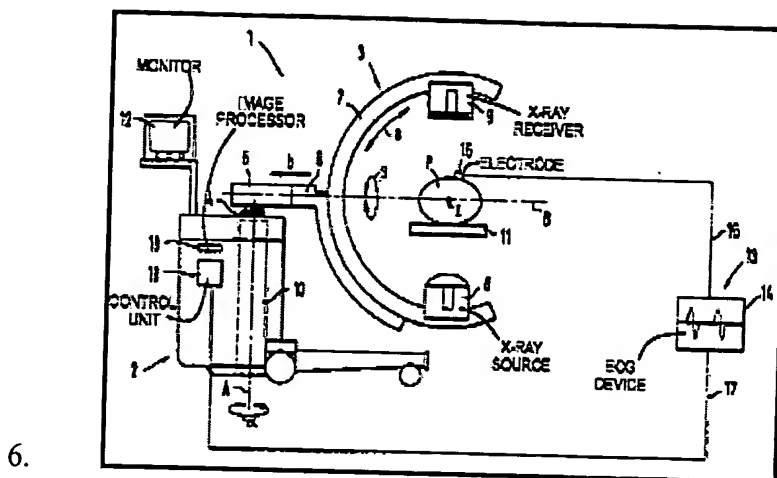


Figure 1 - U.S. Patent 6,324,254 to Pflaum

7. Pflaum discloses a method wherein X-ray images are acquired at predetermined moments in a cardiac cycle (abstract, column 2, lines 52-58) and wherein reconstruction of a 3-dimensional volume occurs as a result of the scan rotation occurring over 180 degrees and at least 15 seconds (column 2, lines 17-32).
8. It would have been obvious to modify the method of Klotz et al. such that it incorporated the method of Pflaum. One would have been motivated to make such a modification so that a sufficient number of images is obtained to illustrate stroboscopic changes in the imaged object as taught by Pflaum (column 2, lines 17-32). Additionally, a practitioner in the imaging art could also configure the system such that image capture is performed at particular times to reduce motion artifacts due to the movement of internal organs of a patient.
9. As per claims 2-5, Klotz et al. as modified, do not explicitly disclose a method wherein a) before reconstruction, images obtained at predetermined corresponding characteristic time moments in successive cardiac cycles are correlated with each other b) wherein the characteristic time moments substantially correspond to R-peaks of the cardiac cycle c) before a reconstruction, images obtained at predetermined neighboring time moments in a predetermined

characteristic time interval of a cardiac cycle are correlated with each other and d) reconstruction is combined with modeling techniques.

10. It would have been obvious to further modify the method of Klotz et al., such that it incorporated the aforementioned claims. One would have been motivated to make such a modification so that image capture is performed at particular times to reduce motion artifacts due to the movement of internal organs of a patient. Additionally, categorizing images with capture parameters allows for analysis of time dependent changes in the imaged object.

11. As per claim 6, Klotz et al. as modified disclose an apparatus comprising a circular C-arm (10) with a drive, the C-arm accommodating an X-ray source (12) and an image pick-up (13) and being rotatable over an angle substantially 180 degrees around its center by means of said drive, triggering means for triggering the X-ray images at predetermined characteristic time moments in the cardiac cycle of the object, and means for processing the images obtained to reconstruct a 3-dimensional volume of the object, characterized in that the drive of the C-arm (10) is adjusted to a run length of a scan rotation over substantially 180 degrees which is at least 15 s and preferably about 20 s.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (703) 306-0473. The examiner can normally be reached on M - F (9 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305 3492. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Courtney Thomas

October 30, 2002


ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800